

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with strikethrough. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (currently amended) A document processing apparatus which displays a document image using image data of a document having one or more entry columns, comprising:
  - an image data obtaining unit obtaining image data of a document;
  - an area discrimination unit discriminating an area of a document image indicated by the image data obtained by said image data obtaining unit, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;
  - a data processing unit increasing the ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless the information area based on the discrimination by said area discrimination unit; and
  - a display control unit displaying a document image on a display device using the image data obtained by said data processing unit processing at least one of the first and second partial image data,

wherein said area discrimination unit considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

2. (cancelled)
3. (currently amended) The apparatus according to claim 21, wherein

when said area discrimination unit discriminates the useful information area from the useless information area based on whether or not the number of pixels counted by considering one direction is equal to or smaller than a predetermined value, said data processing unit increases a ratio of the useful information area to the entire area by performing on at least the second partial image data a process of thinning lines having the number of pixels equal to or smaller than a predetermined value in the lines in the one direction.

4. (previously presented) The apparatus according to claim 1, wherein said data processing unit performs a process on at least one of the first and second partial image data so that a ratio of the useful information area to the entire area is increased by using different display magnifications of the useful information area and the useless information area.

5. (currently amended) A method for displaying a document image using image data of a document having one or more entry columns, comprising:

discriminating an area of a document image indicated by the image data of the document, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;

increasing a ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the discrimination; and

displaying the document image on a display device using the image data obtained by processing at least one of the first and second partial image data,

wherein said discriminating an area of the document image considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

6. (currently amended) A document processing apparatus which processes a document having one or more entry columns, comprising:

image data obtaining unit obtaining image data of a document;

area discrimination unit discriminating an area of a document image indicated by the image data obtained by said image data obtaining means, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;

data processing unit increasing a ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the discrimination by said area discrimination means;

display control unit displaying a document image on a display device using the image data obtained by said data processing means processing at least one of the first and second partial image data;

document recognition unit recognizing the entry column entered on the document image displayed by said display control means; and

correction unit correcting presence/absence of an entry in the entry column recognized by said document recognition means at an instruction of a user,

wherein said area discrimination unit considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

7. (currently amended) A storage medium storing a program used to direct a document processing apparatus which displays a document image using image data of a document having one or more entry columns, comprising the functions of:

obtaining image data of the document;

discriminating an area of a document image indicated by the image data obtained by said obtaining function, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;

increasing a ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the discrimination by said discriminating function; and

displaying the document image on a display device using the image data obtained by

processing at least one of the first and second partial image data by said increasing function,  
wherein said discriminating an area of the document image considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

8. (currently amended) A storage medium storing a program used to direct a document processing apparatus which processes a document having one or more entry columns, comprising the functions of:

obtaining image data of the document;

discriminating an area of a document image indicated by the image data obtained by said obtaining function, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;

increasing a ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the discrimination by said discriminating function;

displaying the document image on a display device using the image data obtained by processing at least one of the first and second partial image data by said increasing function;

recognizing the entry column entered on the document image displayed by said display control means; and

correcting presence/absence of an entry in the entry column recognized by said document recognition means at an instruction of a user,

wherein said discriminating an area of the document image considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

9. (currently amended) A document processing apparatus which displays a document image using image data of a document having one or more entry columns, comprising:

an image data obtaining means for obtaining image data of a document;

an area discrimination means for discriminating an area of a document image indicated by the image data obtained by said image data obtaining unit, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;

a data processing means for increasing a ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the discrimination by said area discrimination unit; and

a display control means for displaying a document image on a display device using the image data obtained by said data processing unit processing at least one of the first and second partial image data,

wherein said discrimination means considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

10. (currently amended) A document processing apparatus which processes a document having one or more entry columns, comprising:

image data obtaining means for obtaining image data of a document;

area discrimination means for discriminating an area of a document image indicated by the image data obtained by said image data obtaining means, and discriminating at least between two types of areas, that is, a useful information area having useful information for document processing and an useless information area having no useful information area;

data processing means for increasing a ratio of the useful information area to the entire area by processing at least one of a first partial image data which is image data of a portion for display of the useful information area and a second partial image data which is image data of a portion for display of the useless information area based on the discrimination by said area discrimination means;

display control means for displaying a document image on a display device using the image data obtained by said data processing means processing at least one of the first and second partial image data;

document recognition means for recognizing the entry column entered on the document

image displayed by said display control means; and

correction means for correcting presence/absence of an entry in the entry column recognized by said document recognition means at an instruction of a user,

wherein said discrimination means considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the useful information area from the useless information area based on a counting result comparison to a predetermined number.

11. (currently amended) A method of processing a document image which has one or more entry columns, the method comprising:

discriminating an area of an obtained document image between an area of useful information and an area of useless information; and

displaying at least one of a first and second partial image data obtained by increasing a ratio of useful information to an entire area by processing of the first partial image data and the second partial image data which is image data of a portion for display of the useless information area based on the discriminating,

wherein said discriminating an area of the document image considers at least one direction in counting a number of pixels assumed to be used in displaying information about a document image represented by the image data, and discriminates the area of useful information from the area of useless information based on a counting result comparison to a predetermined number.

12. (new) A method of discriminating between useful and useless information in a document image comprising:

discriminating an area of an obtained document image by counting in at least one direction a number of pixel to be used in displaying information about a document image and comparing the counting result to a predetermined number; and

displaying at least one of a first and second partial image data obtained by increasing a ratio of useful information to an entire area by processing of the first partial image data and the second partial image data which is image data of a portion for display of the useless information area based on the discriminating.